V-TONE GMX110/GMX210/GMX212/GMX1200H

ENGLISH

User's Manual

Version 1.1 July 2004

www.behringer.com

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IMPORTANT SAFETY PRECAUTIONS

FOREWORD

Dear Customer,

welcome to the team of BEHRINGER users, and thank you very much for expressing your confidence in us by purchasing the BEHRINGER V-TONE.

Writing this foreword for you gives me great pleasure, because it represents the culmination of many months of hard work delivered by our engineering team to achieve a very ambitious goal: to develop four outstanding guitar amps that are at the forefront of what is technically possible and that can be used in many different applications. Our guitar amps offer you strong performance, their sound is amazingly clear, and they are easy to use both as direct recording amps as well as stage amps. The task of designing our new V-TONEs certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. Meeting your expectations also meant a lot o6f work and night shifts. But it was fun, too. Developing a product usually brings a lot of people together, and what a great feeling it is when all who participated in such a project can be proud of what they've achieved.

It is our philosophy to share our enjoyment with you, because you are the most important member of the BEHRINGER team. With your highly competent suggestions for new products you've made a significant contribution to shaping our company and making it successful. In return, we guarantee you uncompromising quality as well as excellent technical and audio properties at an extremely reasonable price. All of this will enable you to give free rein to your creativity without being hampered by budget constraints.

We are often asked how we manage to produce such high-quality devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Many satisfied customers mean large sales volumes enabling us to get better purchasing terms for components, etc. Isn't it only fair to pass this benefit on to you? Because we know that your success is our success too!

I would like to thank all of you who have made the V-TONE Series possible. You have all made your own personal contributions, from the developers to the many other employees at this company, and to you, the BEHRINGER user.

My friends, it's been worth the effort!

Thank you very much,

Uli Behringer

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WARNING!

☞ **We would like to bring your attention to the fact that extremely loud sound levels may damage your hearing as well as your headphones. Please turn the MASTER control all the way to the left before powering up the unit. Always try to keep volume at appropriate levels.**

1. INTRODUCTION

Thank you for the trust that you have placed in us by buying your V-TONE. You have gotten your hands on a latest-generation guitar amp that sets completely new standards when it comes to analog modeling.

Our primary goal during development was to simulate the typical sounds of analog guitar amps, and at the same time give you a powerful sound tool that you can use flexibly. In doing so, we constantly strove to create a piece of equipment that is intuitive and easy to use.

The demands placed on a guitar amp are nowadays very broad. A guitarist should offer a wide array of sounds, but at the same time be able to quickly adapt to specific requirements of various applications—be it home recording, studio, live performances, etc. That's why it is very important to us to be able to offer you a maximal sound diversity as well as diverse connection possibilities with our V-TONE. Fret not: you will quickly master the V-TONE and will be able to quickly learn how to use all of its capabilities easily and intuitively.

With its up-to-date circuitry, its digital signal processor (DSP) and its integrated tuner, the V-TONE features the functionality and dependability of a truly modern guitar amp. Yet it is user-friendly and problem-free as if it were a classic tube combo. We highly recommend taking your time to truly learn all of the V-TONE's functions so you can reach its maximum potential.

1.1 The concept

The BEHRINGER company philosophy guarantees a perfectly thought-out circuitry concept, with components that were selected without cutting any corners. The operational amplifiers that BEHRINGER uses in the V-TONE are some of the most noise-free operational amps around, and are characterized by extreme linearity and low distortion. They are complemented by low-tolerance resistors and capacitors, high-value potentiometers and switches as well as additional select components.

The robust housing of your V-TONE, with its oversize power supply, gives you the peace of mind that the V-TONE will hold its own even under the most demanding stage conditions. The housing is made of high-grade, environment-friendly MDF wood consisting of multiply impregnated layers.

1.2 DYNAMIZER technology and analog modeling

When an electric instrument is amplified, that's where you either make it or break it. Unlike the signals that have been mixed and mastered, the signals of electric instruments have extremely high signal peaks, placing the dynamic range of the amp's circuitry under immense strain. How your amp reacts to these signal peaks is one of its most defining characteristics.

That's why we've equipped all V-TONE Series amps with our unique DYNAMIZER preamplifier circuitry. It guarantees a lively sound with a lot of punch, even when the amp is pushed to its limits. Combine that with our V-TONE analog modeling, and not only do you have amazingly authentic tube sounds at your fingertips, you also get the dynamic performance typical of the respective amp type. Crystal-clear guitar tones come through with transparency, warmth and the compression typical of tube amps. Even as distortion increases, the sound remains lively and full of power, without losing any of its assertiveness.

All along, you have full control over the volume. Plainly talking, you can take the same sound you are used to at your practice room and replicate it in your bedroom at much more reasonable volume levels, or you can even record yourself while playing.

☞ **The following user's manual will familiarize you with the control elements of your new V-TONE and let you learn all of its functions. After reading this manual, store it somewhere where you can easily find in the future, should you need to look up some information.**

1.3 Before you get started

1.3.1 Shipment

The V-TONE was carefully packed at the assembly plant to assure secure transport.

Should the condition of the cardboard box suggest that your V-TONE may have been damaged in transport, please inspect the unit immediately and look for physical indications of damage.

☞ **Damaged equipment should NEVER be sent directly to us. Please inform the dealer from whom you acquired it immediately as well as the transportation company from which you took delivery. Otherwise, all claims for replacement/repair may be rendered invalid.**

☞ **To assure optimal protection of your V-TONE during transport, we recommend utilizing a carrying case.**

☞ **If the unit needs to be shipped, please always use the original packaging to avoid damage.**

☞ **Never let unsupervised children play with the V-TONE or with its packaging.**

☞ **Please dispose of all packaging materials in an environmentally-friendly fashion.**

1.3.2 Initial operation

Please make sure that your V-TONE is provided with sufficient ventilation, and never place it on other amplifiers or in the vicinity of a heater to avoid the risk of overheating.

☞ **Before plugging your V-TONE into a power socket, please make sure you have selected the correct voltage:**

The fuse mount near the power cord connector has three triangular markings. Two of these triangles are facing opposite one another. Your V-TONE is set up for the voltage indicated near these markings, and can be altered by turning the fuse mount by 180 degrees. **ATTENTION: This does not apply to export models built for 120 V, for example!**

☞ **If you use your V-TONE unit with a different voltage, you must change the fuses accordingly. The correct value of the fuses needed can be found in the section "SPECIFICATIONS".**

☞ **Faulty fuses must be replaced with fuses of appropriate rating, without exception! The correct value of the fuses needed can be found in the section "SPECIFICATIONS".**

Power is delivered via the cable that was delivered with the V-TONE. All mandatory safety precautions have been adhered to.

☞ **Please make sure that all your equipment is grounded at all times. For your own protection, you should never tamper with the grounding of the cable or the unit itself. The unit shall always be connected to a mains socket outlet with a protective earthing connection.**

MIDI connection is established using a standard DIN connector. Data transfer occurs via isolated opto-couplers. Additional information can be found in section 6 "INSTALLATION".

1.3.3 Warranty

Please send the completely filled out warranty card within 14 days of purchase to us, as warranty claims may otherwise be rendered invalid. The serial number of your V-TONE is located on the rear. Alternatively, you may register online at www.behringer.com.

2. CONTROL ELEMENTS AND CONNECTIONS

Control elements of your V-TONE guitar amp are described in this section. All controls and connections are explained in detail, and we give you useful tips about using them. An illustration of the control elements with the corresponding numbering can be found on the separately included supplementary sheet.

Because models GMX210, GMX212 and GMX1200H each feature two identical MODELING CHANNELS, control elements [4] through [11] will only be described once in the following section.

2.1 Front panel

[1] The connector labeled *INPUT* is the 1/4" jack input of your V-TONE. Use it to connect your guitar. Use a commercially available 1/4" jack mono cable (no DIY, better ask your specialized dealer), with good mechanical and electrical shielding to avoid unpleasant surprises during rehearsals or concerts.

[2] On the GMX110, the *CLEAN* control modifies the volume of the CLEAN channel in relation to the MODELING CHANNEL.

[3] Use the *CHANNEL* key to switch between the two MODELING CHANNELS (except for the GMX110). The channel LED [5] of the active channel lights up. On the GMX110, the *CHANNEL* key switches between CLEAN and MODELING CHANNEL. CLEAN CHANNEL is active when the channel LED [5] is not lit up. With all models you can also switch between channels using the provided footswitch. A long hit (approx. 2 seconds) on the *CHANNEL* key activates the guitar tuner.

[4] The *DRIVE* control determines the amount of distortion in the respective MODELING CHANNEL. This way, the preamp of your V-TONE can be ideally adjusted to the output level of your guitar pick-up to achieve the desired amount of distortion (depending on the amp, mode and speaker combination you selected).

[5] The *CHANNEL* LED indicates the currently selected channel.

[6] Use the *AMP* switch to dial up the basic sounds of the three guitar amps that orient themselves on classic tube amps. You will surely recognize these classic amp sounds as soon as you hear them. Expect crystal-clear, transparent sounds with dynamic basses if you select TWEED. You get aggressive mids and pressure-rich, inescapable assertiveness and endurance when you select BRITISH. Rounder and more evened-out (yet still sophisticated) sounds can be dialed up if you select CALIF.(ORNIAN); it's perfect for lead sounds.

[7] Use the *MODE* switch to dial up one of three possible gain settings (CLEAN, HI GAIN and HOT) that you wish to use with the basic sound you selected using AMP.

[7]

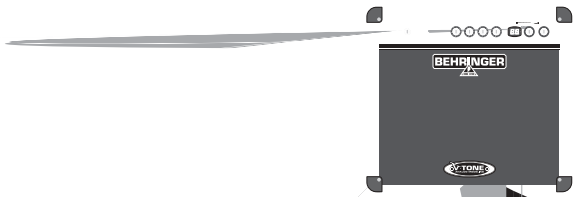
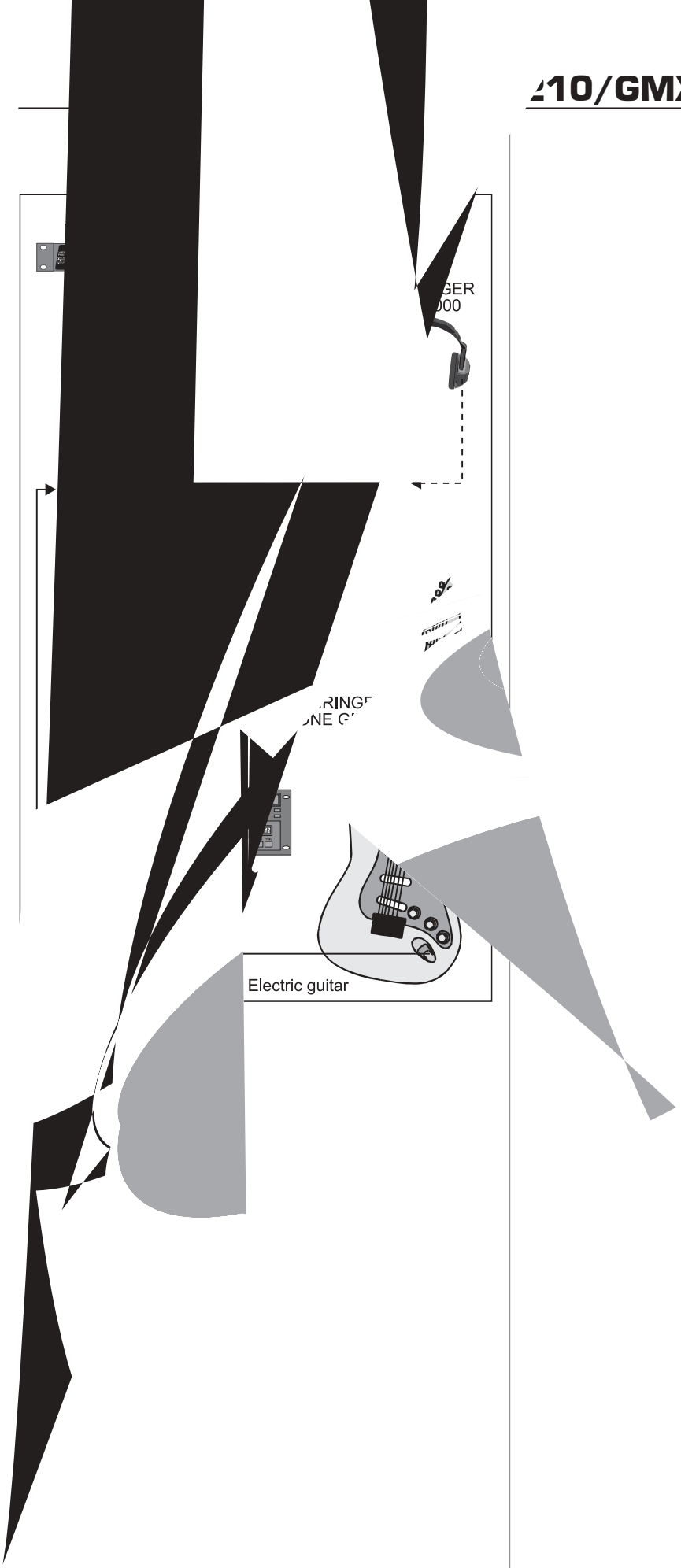


Fig. 3.1: Standard setup

To use your V-TONE in practice rooms or to jam at home, connect your V-TONE as illustrated in figure 3.1. Connect a CD player or a drum computer to the TAPE input. You can control the volume of the connected signal by using the TAPE INPUT control (on the GMX210, GMX212 and the GMX1200H, the AUX control adjusts the signal connected to the AUX IN). If you want (or have to!) to practice using headphones, connect your headphones to the PHONES connector on your V-TONE. The loudspeaker is automatically muted. [illegible] the provided dual footswitch to the footswitch connecto[illegible] CHANNEL footswitch to switch b[illegible] FXT is active (see section 4.[illegible] both channels are loaded. Use the IN/[illegible] deactivate the effect. Keeping CHANN[illegible] seconds activates the internal tuner.

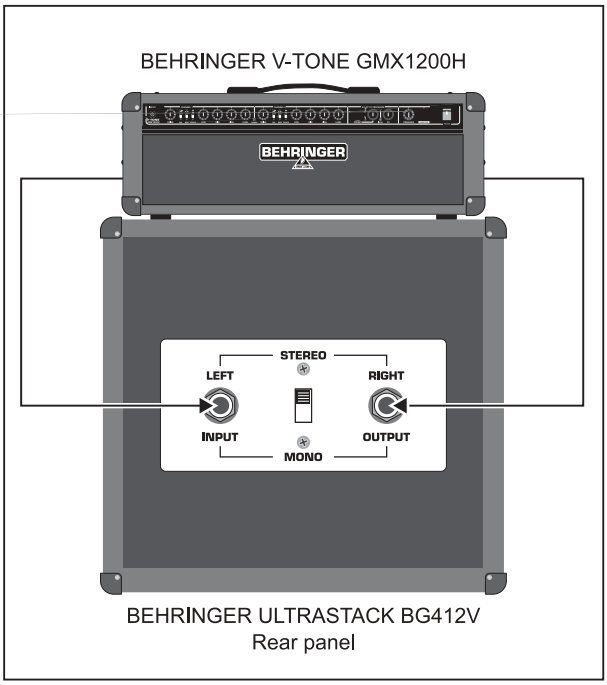

Electric guitar

3.4 Wiring the GMX1200H

The GMX1200H head features two LOUDSPEAKER outputs (EXT LEFT and EXT RIGHT) that can be used to connect one or two external loudspeakers. To get the most power from the GMX1200H, both loudspeaker outputs should be used and connected to speakers with minimum 8 Ohms impedance. Loudspeaker outputs are automatically muted as soon as you activate the tuner or connect a set of headphones (see section 5.1). To assure optimal and safe use of your amplifier, please also read section 6.2.

When the GMX1200H is used with a single BEHRINGER ULTRASTACK BG412V, the rear panel switch of the BG412V **must** be in the stereo position and the two outputs should be connected as shown in fig. 3.4.

When using two speaker cabinets to form a classic full-stack please make sure the impedance of each speaker cabinet is between 8 to 16 Ohms (see fig. 3.5).



The multi-effects processor works basically in stereo, whereby only the TAPE and PHONES outputs are influenced in the case of the GMX110. Both signals (left and right) are added up for the speaker and the mono power amp of the GMX110. However, you can still use stereo effects for recording purposes by utilizing the TAPE OUT or by playing with a second amp in stereo. The GMX210 and GMX212 can produce the effects in stereo because they have two built-in speakers. Stereo reproduction is also possible with the GMX1200H when the speakers are connected to it in stereo.

- Turn the PRESET control to dial up an effect preset. While the preset is loading up, the new program number blinks in the display. The preset you dialed up is active shortly thereafter. This new preset is shown in the display.
- Use the FX control to edit the effect. Effect mix is shown in the display. After 3 seconds, the display shows the preset number again. The decimal point in the 2-digit display blinks each time you make a change.
- To store an edit, keep the IN/OUT key pressed for abou seconds. This overwrites the previous settings.
- To restore factory presets (reset function), keep IN pressed ***while*** powering up the V-TONE.

4.1 FXT—effects tracking

FXT is an extremely useful function that le ssign a specific effect to each channel of the V-TONE activate these effects when you switch between th ls.

This way, you can for example assign a effect to the MODELING CHANNEL 1, and assign RB/CHORUS combination effect to the MODELING CH 2. A single tap on the CHANNEL key or the footswitch switch between the channels, and the V-TONE autom oads up the correct effect.

When MIDI is active, the abov nger applies. You can switch between the channels effects independently from one another. How MIDI is ed is described in ch. 4.3.

4.2 ffects

38-42 Chorus/Reverb: First, the signal goes through a chorus effect with varying intensity, and then it goes through a reverb. Adjustable parameter: chorus mix.

43-47 Chorus/Delay: The signal first goes through a chorus effect with varying intensity, and then it goes through a delay effect with varying feedback and delay time values. You can adjust the delay ratio in the mix.

48-51 Flanger: Using an LFO, the pitch of the effect signal is somewhat modulated in constant tempo, and is then brought back to the input signal. This effect goes hand in hand with the sound of a distorted guitar.

52-56 Flanger/Reverb: The signal first goes through a flanger with varying intensity, and then it goes through a reverb. The FX control lets you adjust the ratio of the flanger mix.

57-61 Flanger/Delay: The signal is first passed through a flanger with varying intensity, and then it goes through a delay effect. The ratio of the delay mix can be adjusted.

62-63 Tremolo: The tremolo effect refers to more or less rapid and intensive variations in the volume.

64-66 Tremolo/Delay: A more or less rapid and intensive variation of the volume that is also coupled to a delay effect. The FX MIX control lets you adjust the ratio of the delay mix.

67-68 Rotary Speaker: A simulation of a classic organ effect that is normally achieved with a terribly heavy casing and slowly or quickly rotating speakers. The physical principle of the Doppler effect is used to modulate the signal.

69-70 Magic Drive: An absolutely “in” effect that’s combined with a delay. And, as whip cream on top, this effect gets an LFO-controlled notch filter. The delay mix ratio is adjustable. This effect is excellent for solo sounds due to its high volume.

71-72 Auto Wah: Depending on the attack time, the Auto Wah effect lets the lower frequencies pass through and more or less suppresses the highs. The sensitivity value of the filter can be adjusted via the FX MIX control. If you primarily play low-end sounds, dial up a lower value. The higher the frequency of the sound you create, the higher the FX MIX value should be.

73-74 LFO Wah: With this effect, the LFO determines how quickly the frequency response is affected. You can create regularly recurring Wah effects. With the LFO Wah effects you can really create impressive results.

75-81 Pitch Shifter: This effect modifies the pitch of the input signal. Musical intervals and harmonics are created, and the propagation of a single voice can be adjusted. You can create signals that are majorly out of tune (e.g. signals shifted upward by several half-tones), such as the strange-sounding voices often used in cartoons. There are several default intervals already built into the presets.

82-85 Pitch/Reverb: The signal first goes through a pitch shifter with various transpositions in half-tone increments (or smaller). A reverb follows. Adjustable parameter: pitch shifter mix.

86-89 Pitch/Delay: The signal first goes through the pitch shifter with various intervals, and then it’s run through a delay effect. Use FX MIX to adjust the pitch shifter mix parameter.

90-91 Compressor: A signal’s dynamic characteristics are often limited to assure its integration into the overall mix. This can be done by using a compressor or a limiter. A limiter confines the signal to the values above or below a previously determined threshold value rather abruptly, whereas the compressor does basically the same, but the threshold area is rather “softly” delineated, so program intervention is not so suddenly felt. Use the FX MIX control to determine the threshold point for the compressor. This effect prolongs the sustain of your guitar, or you can also for example make the strumming on a funky-style guitar more audible (chicken scratch).

92-93 Expander: Background noise of all kinds (hissing, hum, etc.) limit the dynamic range of the desired signal. As long as the main signal’s level is considerably higher than the noise floor, background noise is inaudible; the main signal basically masks the underlying noise signal. You can use the expander to effectively broaden the dynamic range of a signal. The signal is weakened when the amplitudes are smaller, whereby background noise is lowered. The FX MIX control determines the expander’s threshold.

94-96 Guitar Combo: This effect simulates the sound characteristics of a small guitar combo, simulating not only two tube stages, but also the cabinet and the speaker. Use the FX MIX control to adjust the mix of direct and combo signals.

97-99 Speaker Cabinet: This effect emulates three different types of speaker cabinets. Additionally, you can shift the speaker’s main resonance peak by using the FX MIX control.

4.3 MIDI control

Thanks to its built-in MIDI interface, you can integrate your V-TONE into any MIDI setup. The V-TONE is capable of receiving both program change and MIDI controller information. So, you can change programs via MIDI using a MIDI foot controller or a computer-based sequencing software, and you can also control individual effect parameters and edit your own effects. Our MIDI foot controller FCB1010 gives you precisely these options, and is a perfect match for all BEHRINGER guitar amps.

This is how you activate the MIDI functions:

- Connect the MIDI IN connector of your V-TONE to the MIDI OUT jack of a MIDI foot controller (see fig. 3.3).
- Keep CHANNEL and IN/OUT keys simultaneously depressed for 2 seconds.
- Use the PRESET control to select a MIDI channel (1 through 16, “ON” = Omni mode, “OF” = off). When the display no longer blinks, the selected MIDI channel is activated. Omni mode means that your V-TONE receives and processes relevant MIDI information on all channels. Of course, you should select the same channel both on your MIDI foot controller and the V-TONE (see your MIDI foot controller user’s manual). The left decimal point on the display jitters when MIDI data is received on the V-TONE, giving you visual confirmation about the information currently being received.

y reads “OF”).

ntrol different functions of your V-TONE using end, the V-TONE receives MIDI instructions (so- es). The messages that need to be sent to your to be created either on a MIDI foot controller or on ncer. Basically, these are **Program Change** d **Controller Messages**:

Changes: You can dial up presets using MIDI s. Since program changes start at 0 and go up change 0 corresponds to preset 1, program set 2, and so on (compare table 7.1 in th e switch is done, the preset is directly acti om a possibly set bypass.

ters: Three parameters of the effects justed in real time. This way, y n create dify existing effects to yo cific needs time to the tact of v or remotely ot controller.

ber fe on your MIDI foot Using the footswitch ot controller, w modify the values of ee adjustable parameters in real time or directly enter their s. Which three parameters for the respective effect can be d is shown in the following table:

REVER

You determine the **input volume** of the effect module by using MIDI controller #7. This lets you adjust the volume of your V-TONE to your own requirements. Since this controller does not control master volume, you should first adjust the maximum volume you need by using the master volume control, and then use MIDI controller #7 to lower the volume. This function is also called “volume controller”.

The operating range of the **Wah effect** is adjusted using MIDI controller #15.

Furthermore, if you’re using LFO-controlled modulation effects, you can deactivate LFO and implement **modulation** via MIDI controller #15. To activate this MIDI controller, you should first set up the LFO velocity either directly on your V-TONE or set the respective MIDI controller to value 0.

Of course, you can use a MIDI sequencer or a computer-based MIDI editor for MIDI remote control, particularly in the home recording environment.

5. TUNER

▲ The integrated tuner is activated by pressing the CHANNEL key for about 2 seconds (directly on the amp or on the footswitch).

5.1 Tuning your guitar

The chromatic tuner automatically recognizes the frequencies of guitar notes. For A string, this means a frequency of 110 Hz. When you connect your guitar to the V-TONE and strum a string, the tuner tries to recognize the tone and shows it in the display. Because the tuner functions chromatically, it can also recognize semitones. These are shown in the display with a “b” accompanying the value.

However, it may be the case that a played note (shown in the display as for example “a”) slightly deviates from the ideal tone. This will be indicated by lighting up at least one of the red tuner LEDs (HIGH/LOW) near the FX display. The faster the LED blinks, the harsher the deviation of the played tone from the note shown in the display. If the middle LED (green) lights up, the tone you played is completely in tune with the tone indicated in the display.

When the tuner is active, the loudspeaker outputs are typically muted. However, sometimes it is preferable not to mute the signal in order to let you have acoustic control of what you are doing while you are tuning your guitar. For this reason, the V-TONE has an integrated tuner level function.

▲ You can adjust tuner volume from 0 to 99 by using the FX control. At “0” the guitar signal is completely muted. After a successfully implemented adjustment, the display automatically goes back to tuner mode.

5.2 Setting up the “a” reference tone

To put complete freedom at your disposal when tuning your instrument, you have the option to change the preset of the reference tone “a”. Here is a quick intro to the subject.

The so-called “chamber tone a” has been continually revised upwards ever since it was first measured: tuning forks of Bach, Handel or Mozart were at 415, 420 or 421 Hz (vibrations pro second).

Nowadays, orchestras set the “a” with 444 Hz, and the Berlin Philharmonic Orchestra wishes to stay ahead: their “chamber tone a” lies at a full 447 Hz.

The reference tone “a” of the V-TONE is programmed at 440 Hz. Let’s say, you want to work with a big orchestra that works with the chamber tone “a” set to 444 Hz. To activate the function that changes the chamber tone, do the following:

▲ Activate the tuner by keeping the CHANNEL key pressed for a few seconds.

▲ By turning the PRESET control, you can adjust the “a” reference tone up or down in 1 Hz increments for a maximum of 15 Hz. The last two digits of the frequency value are always shown in the display, since the first digit is always a 4. For example, when you start with the 440 Hz basic tone, and then press the right arrow key four times, the display shows 44, which corresponds to a frequency of 444 Hz.

After about 5 seconds, the display goes back to tuner mode. Your changes are automatically stored. Ideal tones for the remaining strings are automatically set up using the newly adjusted frequency as a reference.

A quick hit on the CHANNEL key lets you leave tuner mode and go back to amp mode.

6. INSTALLATION

6.1 Audio connections

With the exception of the headphone output and the AUX input (stereo jacks), audio inputs and outputs of your BEHRINGER V-TONE are provided in the form of mono jack connectors. Tape inputs and outputs are provided as RCA connectors.

☞ **Please keep in mind that your V-TONE should be installed and operated only by those who possess sufficient technical knowledge about its installation and operation. Everyone dealing with your V-TONE should be sufficiently grounded both during the installation as well as during actual usage. Failure to do so may cause undesirable or faulty operation due to electromagnetic discharges and similar.**

6.2 Speaker connection

The GMX110 features a SPEAKER connector to which you can connect an additional loudspeaker. This additional loudspeaker should be able to handle at least 30 Watts and the impedance of 4 Ω.

The GMX212 and GMX1200H feature two LOUDSPEAKER-outputs (EXT LEFT and EXT RIGHT) for connecting two loudspeakers or a single stereo loudspeaker unit. The output power rating is 60 W per channel. To assure optimal power delivery from the amp, you should use 8-Ω loudspeakers that can handle at least 60 Watts.

This goes for all models: You can also use loudspeakers with higher impedance values, but this lowers proportionally the power delivery as the resistance increases. Doubling the impedance halves the power value (double the Ohms = half the Watts).

☞ **Since SPEAKER and LOUDSPEAKER outputs are connectors where amplified signals are given out, never connect equipment with line-level inputs to these two connectors, e. g. mixer inputs.**

6.3 MIDI connection

The MIDI standard (**M**usical **I**nstruments **D**igital **I**nterface) was first developed at the beginning of the ’80s, with the goal of enabling mutual communication between electronic instruments of various manufacturers. Over the years, the number of possible MIDI applications has increased substantially; nowadays, it is perfectly normal to connect entire studios via MIDI.

At the center of this network is a computer with a sequencing software, used to control not only keyboards but also effects processors and other peripheral equipment. In such a studio, you can control your V-TONE in real time from a computer. Using a MIDI footswitch presents itself as a great idea, especially in live applications, because it allows you to control not only effect parameters but also switch between channels and effects.

The standard 5-pole DIN MIDI connector is located on the rear of your V-TONE. To connect your V-TONE with other MIDI equipment, you will need a MIDI cable. Pre-packed cables available at music stores are used for this purpose. Such cables should not be longer than 15 m (45 ft).

MIDI IN receives MIDI control data. The receiving channel is adjusted using the CHANNEL and IN/OUT key combination On = Omni means that MIDI data are being received and processed on all channels (compare section 4.2).

7. APPENDIX

7.1 MIDI implementation

MIDI Implementation Chart				
Function		**Trans-mitted**	**Recognized**	**Remarks**
Basic Channel	Default	X	OFF, 1 - 16	memorized
	Changed	X	OFF, 1 - 16	
Mode	Default	X	1,2	
	Messages	X	X	
	Altered	X	X	
Note Number	True Voice	X	X	
		X	X	
Velocity	Note ON	X	X	
	Note OFF	X	X	
After Touch	Keys	X	X	
	Channels	X	X	
Pitch Bender		X	X	
Control		X	O 7, 10 - 15, 18	see add. table
Progr. Change	True #	X	O 122, 123, 124, 127 (0 - 98) 1 - 99	122 = TUNER 123 = CLEAN 124 = DRIVE 127 = Effect Bypass
System Exclusive		X	X	
System Common	Song Pos.	X	X	
	Song Sel.	X	X	
	Tune	X	X	
System Real Time	Clock	X	X	
	Commands	X	X	
Aux Messages	Local ON/OFF	X	X	
	All notes OFF	X	X	
	Active Sense	X	X	
	Reset	X	X	
Notes				
O = YES, X = NO				
Mode 1:	OMNI ON			
Mode 2:	OMNI OFF			

Tab. 7.1: MIDI implementation

Parameter Name	Display Range	Midi Control Number	Control Value Range
Volume Controller	-	7	0 .. 127
Channel	CLEAN (Channel 1) = 0 DRIVE (Channel 2) = 1	10	0 .. 1
Effect	OFF = 0, ON = 1	11	0 .. 1
Parameter 1	depends on effect *	12	0 .. 127 (max.)
Parameter 2	depends on effect *	13	0 .. 127 (max.)
Parameter 3	depends on effect *	14	0 .. 127 (max.)
Wah/ Modulation	-	15	0 .. 127
Store Enable	-	18	0 .. 127
* for details see Tab. 4.1			

Tab. 7.2: V-TONE MIDI controllers

8. SPECIFICATIONS

	GMX110	GMX210	GMX212	GMX1200H
AUDIO INPUTS				
GUITAR IN	1/4" TS, RF filtered			
Input Impedance	approx. 1 MΩ unbalanced			
INSERT RETURN	1/4" TS			
Input Impedance	approx. 10 kΩ unbalanced			
SLAVE IN	-	1/4" TRS (tip = input)		
Input Impedance	-	approx. 30 kΩ unbalanced		
AUX IN	-	1/4" stereo jack		
Input Impedance	-	approx. 10 kΩ unbalanced		
TAPE IN	RCA			
Input Impedance	approx. 10 kΩ unbalanced			
AUDIO OUTPUTS				
INSERT SEND	1/4" TS, low-impedance, line level			
Output Impedance	approx. 1 kΩ unbalanced	approx. 100 Ω unbalanced		
LINE OUT	-	1/4" mono jack		
Output Impedance	-	> 1 kΩ unbalanced		
Max. output level	-	+8 dBu unbalanced		
TAPE OUT	RCA			
Output Impedance	approx. 3 kΩ unbalanced			
Max. output level	+9 dBu unbalanced			
PHONES OUTPUT	1/4" TRS stereo			
Max. output level	+15 dBu / 100 Ω (+23 dBm)			
SLAVE OUT	-	1/4" TRS (ring = output)		
Output impedance	-	approx. 2 kΩ unbalanced		
Max. output level	-	+21 dBu unbalanced		
LOUDSPEAKER OUTPUT				
Type	1/4" TS	-	1/4" TS x 2	
Min. load impedance	4 Ω	-	8 Ω	
SYSTEM SPECIFICATIONS				
power amp output	1 x 30 W / 4 Ω	2 x 30 / 2 x 4 Ω	2 x 60 W / 2 x 8 Ω	
MIDI-INTERFACE				
Type	5-pin DIN-socket, MIDI IN			
DIGITAL PROCESSING				
Converters	24-bit sigma-delta, 64/128-times oversampling			
Sampling rate	46.875 kHz			
DISPLAY				
Type	2-digit numeric LED-display			
LOUDSPEAKERS				
Type	10" heavy-duty	2 x 10" heavy-duty	2 x 12" heavy-duty	-
Model	JENSEN® / BUGERA™			-
Impedance	4 Ω	2 x 4 Ω	2 x 8 Ω	-
Power handling	35 W	35 W	70 W	-
POWER SUPPLY				
Mains voltage	USA/Canada 120 V~, 60 Hz			
	Europe/U.K./Australia 230 V~, 50 Hz			
	Japan 100 V~, 50 - 60 Hz			
	General Export model 120/230 V~, 50 - 60 Hz			
Power consumption	max. 70 watts	max. 150 watts	max. 200 watts	max. 200 watts
Fuses 100 - 120 V~	**T 2 A H** 250 V	**T 2,5 A H** 250 V	**T 5 A H** 250 V	**T 5 A H** 250 V
200 - 240 V~	**T 1 A H** 250 V	**T 1,25 A H** 250 V	**T 2,5 A H** 250 V	**T 2,5 A H** 250 V
Mains connection	Standard IEC receptacle			
DIMENSIONS AND WEIGHT				
Dimesions (H x W x D)	400 x 423 x 213/253 mm	473 x 605 x 255 mm	493 x 712 x 255 mm	280 x 712 x 240 mm
	15 3/4 x 16 3/4 x 8 3/8 / 10"	18 3/5 x 23 5/6 x 10"	19 2/5 x 28 x 10"	11 x 28 x 9"
Weight	24.25 lbs (11 kg)	40.1 lbs (18.2 kg)	53 lbs (24 kg)	34 lbs (15.5 kg)

BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or illustrated.

9. WARRANTY

§ 1 WARRANTY CARD/ONLINE REGISTRATION

To be protected by the extended warranty, the buyer must complete and return the enclosed warranty card within 14 days of the date of purchase to BEHRINGER Spezielle Studiotechnik GmbH, in accordance with the conditions stipulated in § 3. Failure to return the card in due time (date as per postmark) will void any extended warranty claims. Based on the conditions herein, the buyer may also choose to use the online registration option via the Internet (www.behringer.com or www.behringer.de).

§ 2 WARRANTY

1. BEHRINGER (BEHRINGER Spezielle Studiotechnik GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year* from the